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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/898,008	07/05/2001	Paul Anuzis	110023	1652

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EXAMINER	
LE, TOAN M	
ART UNIT	PAPER NUMBER
2863	

DATE MAILED: 10/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/898,008	ANUZIS ET AL.	
	Examiner	Art Unit	
	Toan M Le	2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 August 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached.detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-18 are rejected under 35 U.S.C. 102(b) as being anticipated by "Application of a Neural Network in Gas Turbine Control Sensor Fault Detection", Simani et al. (Referred hereafter Simani et al.).

Referring to claim 1, Simani et al. disclose a method for monitoring the health of a system (Abstract), which comprises performing at each of a plurality of times the steps of: constructing a condition signature from a plurality of condition indicators including (a) a plurality of vibration measurements acquired from the system or (b) one or more vibration measurements and one or more performance parameter measurements acquired from the system (page 183, section 3: third paragraph; figure 3); predicting a normal signature from a model defining one or more inter-dependencies between the condition indicators, the normal signature corresponding to a condition signature for a healthy system (page 183, section 2: first paragraph; page 184, section 4: third paragraph); comparing the condition signature with the normal signature; and registering an event if the condition signature differs from the normal signature by more than a predetermined threshold (page 185, section 6: first and second paragraphs).

As to claims 2, 5, 10, and 13, Simani et al. disclose a method for monitoring the health of a system, wherein the model is a learnt model comprising a neural network (page 184, section 4: first paragraph).

Referring to claim 3, Simani et al. disclose a method for monitoring the health of a system, wherein the model comprises a matrix with one or more non-zero off-diagonal terms to define the interdependencies (page 183, section 3: first paragraph; equations 4-5; figure 3).

As to claims 4 and 12, Simani et al. disclose a method for monitoring the health of a system, wherein the steps of comparing the condition signature with the normal signature involves calculating a value for the normalized innovations squared (page 184, section 3: last paragraph).

Referring to claims 6 and 14, Simani et al. disclose a method for monitoring the health of a system, wherein the steps of comparing the condition signature with the normal signature involves calculating a prediction error (page 183, section 3: equation 6).

As to claim 7, Simani et al. disclose a method for monitoring the health of a system, wherein the times define successive intervals of at most 1 sec duration (page 184, section 5: third paragraph).

Referring to claim 8, Simani et al. disclose a method for monitoring the health of a system, which comprises performing at each of a plurality of times defining successive intervals of at most 1 sec duration (Abstract; page 184, section 5: third paragraph) the steps of: constructing a condition signature from a plurality of condition indicators including (a) a plurality of vibration measurements acquired from the system or (b) one or more vibration measurements and one or more performance parameter measurements acquired from the system

(page 183, section 3: third paragraph; figure 3); predicting a normal signature corresponding to a condition signature for a healthy system (page 183, section 2: first paragraph; page 184, section 4: third paragraph); comparing the condition signatures with the normal signature; and registering an event if the condition signature differs from the normal signature by more than a predetermined threshold (page 185, section 6: first and second paragraphs).

As to claims 9 and 11, Simani et al. disclose a method for monitoring the health of a system, which comprises performing at each of a plurality of times defining successive intervals of at most 1 sec duration, wherein the normal signature is predicted from a model comprises a matrix with one or more non-zero off-diagonal terms defining one or more inter-dependencies between the condition indicators (page 183, section 3: first paragraph; equations 4-5; figure 3).

Referring to claim 15, Simani et al. disclose a method for monitoring the health of a system, wherein the measurements are synchronously acquired from the system to a synchronization imprecision of at most 1 sec (page 184, section 5: third paragraph).

As to claim 16, Simani et al. disclose a method for monitoring the health of a system, wherein the system comprises a gas turbine engine (Abstract).

Referring to claims 17-18, Simani et al. disclose a data processing system incorporated into a method for monitoring the health of a system, comprising: data acquisition means (figure 3) for acquiring a plurality of condition indicators from the system at each of a plurality of times defining successive intervals of at most 1 sec duration (page 184, section 5: third paragraph), the condition indicators including (a) a plurality of vibration measurements or (b) one or more vibration measurements and one or more performance parameter measurements (figure 3) for constructing a condition signature from the condition indicators (page 183, section 3: third

paragraph) and for predicting a normal signature corresponding to a condition signature for a healthy system, the normal signature being predicted by a model which defines one or more inter-dependencies between the condition indicators (page 183, section 2: first paragraph; page 184, section 4: third paragraph); comparator means for comparing the condition signature with the normal signature; and registration means for registering an event if the comparator indicates that the condition signature differs from the normal signature by more than a predetermined threshold (page 185, section 6: first and second paragraphs).

Remarks:

Response to Arguments

Applicant's arguments with respect to claims 1-18 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toan M Le whose telephone number is (703) 305-4016. The examiner can normally be reached on Monday through Friday from 9:00 A.M. to 5:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (703) 308-3126. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4900.

Toan Le

September 8, 2003

John Barlow
Supervisory Patent Examiner
Technology Center 2800